AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A passive obstacle detection system for a mobile platform, comprising:

an infrared imaging system that acquires images;

a software system that processes images acquired by the infrared imaging system; and

a crew interface that displays the images processed by the software system, the crew interface responsive to the infrared imaging system to enable a user to control the acquisition of images to acquire images on a direct flight path of a mobile platform and to acquire images outside the direct flight path of the mobile platform,

wherein the software system further comprises cellular automata routines that propagate pixels along a line according to a set of local rules, thereby producing line segments that are linked and presented on the crew interface as obstacles.

2. (original) The passive obstacle detection system of Claim 1, wherein the software system further comprises a function to generate a field of direction vectors.

3. (original) The passive obstacle detection system of Claim 2, wherein the function to generate a field of direction vectors further comprises partial directional derivatives of pixels within the images.

4. (original) The passive obstacle detection system of Claim 2, wherein the function to generate a field of direction vectors further comprises a vertical mask and a horizontal mask to form a magnitude image.

5. (original) The passive obstacle detection system of Claim 2, wherein the function to generate a field of direction vectors further comprises pseudo colors that are indicative of direction.

6. (currently amended) The passive obstacle detection system of Claim 1, wherein the cellular automata routines further comprise a ~~Game of Life~~ model which determines whether to propagate a pixel based on a set of rules.

7. (original) The passive obstacle detection system of Claim 1, wherein the line segments are of a sub-pixel resolution.

8. (currently amended) A passive obstacle detection system for a mobile platform, comprising:

an infrared imaging system that acquires images in a direct path of a mobile platform and outside the direct path of the mobile platform based upon an input from an operator; and

a software system that processes images acquired by the infrared imaging system;

wherein the software system further comprises cellular automata routines that propagate pixels along a line according to a set of local rules, thereby producing line segments that are linked and determined to be obstacles.

9. (original) The passive obstacle detection system of Claim 8, wherein the software system further comprises a function to generate a field of direction vectors.

10. (original) The passive obstacle detection system of Claim 9, wherein the function to generate a field of direction vectors further comprises partial directional derivatives of pixels within the images.

11. (original) The passive obstacle detection system of Claim 9, wherein the function to generate a field of direction vectors further comprises a vertical mask and a horizontal mask to form a magnitude image.

12. (original) The passive obstacle detection system of Claim 9, wherein the function to generate a field of direction vectors further comprises pseudo colors that are indicative of direction.

13. (currently amended) The passive obstacle detection system of Claim 8, wherein the cellular automata routines further comprise a ~~Game of Life~~ model which determines whether to propagate pixels based on a set of rules.

14. (original) The passive obstacle detection system of Claim 8, wherein the line segments are of a sub-pixel resolution.

15. (currently amended) A passive obstacle detection system for a mobile platform, comprising:

a control device manually operable by a user;

an infrared imaging system able to be aimed in response to user movement of the control device, that acquires images based on the input from the control device; and

a software system that processes images acquired by the infrared imaging system;

wherein the software system further comprises cellular automata routines that propagate pixels along a line according to a set of local rules, thereby producing line segments that are linked and determined to be obstacles such that ~~aircraft flight controls are~~ travel of the mobile platform is automatically adjusted according to the obstacles to avoid contact with the obstacles.

16. (cancelled)

17. (cancelled)

18. (currently amended) A method for detection of obstacles, the method comprising the steps of:

(a) acquiring an image based on a positioning input from a control device manually operated by an operator;

([[a]]b) generating a field of direction vectors for pixels acquired by an imaging system;

([[b]]c) propagating the pixels along a line using cellular automata techniques to produce line segments;

([[c]]d) linking the line segments; and

([[d]]e) presenting the linked line segments as obstacles.

19. (original) The method of Claim 18, wherein the step of generating a field of direction vectors further comprises determining partial directional derivatives of pixels within the images.

20. (original) The method of Claim 18, wherein the step of generating a field of direction vectors further comprises generating a vertical mask and a horizontal mask to form a magnitude image.

21. (original) The method of Claim 18 wherein the step of generating a field of direction vectors further comprises generating pseudo colors that are indicative of direction.

22. (currently amended) The method of Claim 18, wherein the cellular automata techniques further comprise a ~~Game of Life~~ model which determines whether to propagate the pixels based on a set of rules.

23. (cancelled)

24. (cancelled)